



#7

22908-1228B

SEQUENCE LISTING

Wemerow, Glen R.
Li, Erguang

<120> BIFUNCTIONAL MOLECULES AND VECTORS COMPLEXED THEREWITH FOR TARGETED GENE DELIVERY

<130> 22908-1228

<140> Herewith

<141> 2001-07-10

<150> 09/613,017)

<151> 2000-07-10

<160> 33

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1516

<212> DNA

<213> Mouse

<220>

<221> CDS

<222> (28)...(1395)

<223> DAV-1 heavy chain, penton base monoclonal antibody

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Met Gly Trp Ser Trp Ile Phe Leu Phe
1 5

ctc ctg tca gga act gca ggc gtc cac tct gag gtc cag ctt cag cag 102
Leu Leu Ser Gly Thr Ala Gly Val His Ser Glu Val Gln Leu Gln Gln
10 15 20 25

tca gga cct gag ctg gtg aaa cct ggg gcc tca gtg aag ata tcc tgc 150
Ser Gly Pro Glu Leu Val Lys Pro Gly Ala Ser Val Lys Ile Ser Cys
30 35 40

aag gct tct gga tac aca ttc act gac tac aac atg cac tgg gtg aag 198
Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr Asn Met His Trp Val Lys
45 50 55

cag agc cat gga aag agc ctt gag tgg att gga tat att tat cct tac 246
Gln Ser His Gly Lys Ser Leu Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr
60 65 70

aaa ggt ggt act ggc tac aac cag aag ttc aag agc aag gcc aca ttg 294
Lys Gly Gly Thr Gly Tyr Asn Gln Lys Phe Lys Ser Lys Ala Thr Leu
75 80 85

aca aca gac agt tcc tcc aac aca gcc tac atg gag ctc cgc agc ctg 342
Thr Thr Asp Ser Ser Ser Asn Thr Ala Tyr Met Glu Leu Arg Ser Leu
90 95 100 105

aca tct gat gcc tct gca gtc tat tac tgt gca aga ggg att gct tac 390

Thr	Ser	Asp	Ala	Ser 110	Ala	Val	Tyr	Tyr	Cys 115	Ala	Arg	Gly	Ile	Ala 120	Tyr		
tgg	ggc	caa	ggg	act	ctg	gtc	act	gtc	tct	gca	gcc	aaa	acg	aca	ccc		438
Trp	Gly	Gln	Gly 125	Thr	Leu	Val	Thr	Val 130	Ser	Ala	Ala	Lys	Thr 135	Thr	Pro		
cca	tct	gtc	tat	cca	ctg	gcc	cct	gga	tct	gct	gcc	caa	act	aac	tcc		486
Pro	Ser	Val 140	Tyr	Pro	Leu	Ala	Pro 145	Gly	Ser	Ala	Ala	Gln 150	Thr	Asn	Ser		
atg	gtg	acc	ctg	gga	tgc	ctg	gtc	aag	ggc	tat	ttc	cct	gag	cca	gtg		534
Met	Val 155	Thr	Leu	Gly	Cys	Leu 160	Val	Lys	Gly	Tyr	Phe 165	Pro	Glu	Pro	Val		
aca	gtg	acc	tgg	aac	tct	gga	tcc	ctg	tcc	agc	ggg	gtg	cac	acc	ttc		582
Thr	Val	Thr	Trp	Asn	Ser 175	Gly	Ser	Leu	Ser	Ser	Gly	Val	His	Thr	Phe 185		
170																	
cca	gct	gtc	ctg	cag	tct	gac	ctc	tac	act	ctg	agc	agc	tca	gtg	act		630
Pro	Ala	Val	Leu	Gln 190	Ser	Asp	Leu	Tyr	Thr 195	Leu	Ser	Ser	Ser	Val 200	Thr		
gtc	ccc	tcc	agc	acc	tgg	ccc	agc	gag	acc	gtc	acc	tgc	aac	gtt	gcc		678
Val	Pro	Ser	Ser 205	Thr	Trp	Pro	Ser	Glu 210	Thr	Val	Thr	Cys	Asn 215	Val	Ala		
cac	ccg	gcc	agc	agc	acc	aag	gtg	gac	aag	aaa	att	gtg	ccc	agg	gat		726
His	Pro	Ala 220	Ser	Ser	Thr	Lys	Val 225	Asp	Lys	Lys	Ile	Val 230	Pro	Arg	Asp		
tgt	ggg	tgt	aag	cct	tgc	ata	tgt	aca	gtc	cca	gaa	gta	tca	tct	gtc		774
Cys	Gly 235	Cys	Lys	Pro	Cys	Ile 240	Cys	Thr	Val	Pro	Glu 245	Val	Ser	Ser	Val		
ttc	atc	ttc	ccc	cca	aag	ccc	aag	gat	gtg	ctc	acc	att	act	ctg	act		822
Phe	Ile	Phe	Pro	Pro	Lys 255	Pro	Lys	Asp	Val 260	Leu	Thr	Ile	Thr	Leu 265	Thr		
250																	
cct	aag	gtc	acg	tgt	gtt	gtg	gta	gac	atc	agc	aag	gat	gat	ccc	gag		870
Pro	Lys	Val	Thr	Cys 270	Val	Val	Val	Asp 275	Ile	Ser	Lys	Asp	Asp	Pro 280	Glu		
gtc	cag	ttc	agc	tgg	ttt	gta	gat	gat	gtg	gag	gtg	cac	aca	gct	cag		918
Val	Gln	Phe	Ser 285	Trp	Phe	Val	Asp	Asp 290	Val	Glu	Val	His	Thr 295	Ala	Gln		
acg	caa	ccc	cgg	gag	gag	cag	ttc	aac	agc	act	ttc	cgc	tca	gtc	agt		966
Thr	Gln	Pro 300	Arg	Glu	Glu	Gln	Phe 305	Asn	Ser	Thr	Phe	Arg 310	Ser	Val	Ser		
gaa	ctt	ccc	atc	atg	cac	cag	gac	tgg	ctc	aat	ggc	aag	gag	ttc	aaa		1014
Glu	Leu	Pro	Ile	Met	His	Gln	Asp	Trp	Leu	Asn	Gly 325	Lys	Glu	Phe	Lys		
315																	
tgc	agg	gtc	aac	agt	gca	gct	ttc	cct	gcc	ccc	atc	gag	aaa	acc	atc		1062
Cys	Arg	Val	Asn	Ser	Ala	Ala	Phe	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile 345		
330																	
tcc	aaa	acc	aaa	ggc	aga	ccg	aag	gct	cca	cag	gtg	tac	acc	att	cca		1110

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Ser Lys Thr Lys Gly Arg Pro Lys Ala Pro Gln Val Tyr Thr Ile Pro
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cct ccc aag gag cag atg gcc aag gat aaa gtc agt ctg acc tgc atg 1158
Pro Pro Lys Glu Gln Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met
      365      370      375

ata aca gac ttc ttc cct gaa gac att act gtg gag tgg cag tgg aat 1206
Ile Thr Asp Phe Phe Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn
      380      385      390

ggg cag cca gcg gag aac tac aag aac act cag ccc atc atg gac aca 1254
Gly Gln Pro Ala Glu Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr
      395      400      405

gat ggc tct tac ttc gtc tac agc aag ctc aat gtg cag aag agc aac 1302
Asp Gly Ser Tyr Phe Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn
      410      415      420      425

tgg gag gca gga aat act ttc atc tgc tct gtg tta cat gag ggc ctg 1350
Trp Glu Ala Gly Asn Thr Phe Ile Cys Ser Val Leu His Glu Gly Leu
      430      435      440

cac aac cac cat act gag aag agc ctc tcc cac tct cct ggt aaa 1395
His Asn His His Thr Glu Lys Ser Leu Ser His Ser Pro Gly Lys
      445      450      455

tgatcccgagt gtccttggag ccctctggtc ctacaggact ctgtcaccta cctccacccc 1455
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<210> 2
 <211> 456
 <212> PRT
 <213> Mouse

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> DAV-1 heavy chain, penton base monoclonal antibody

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Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
      20      25      30
Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
      35      40      45
Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
      50      55      60
Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
      65      70      75      80
Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn
      85      90      95
Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
      100      105      110
Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
      115      120      125
Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
      130      135      140

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Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
145          150          155          160
Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
          165          170          175
Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
          180          185          190
Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
          195          200          205
Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
          210          215          220
Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
225          230          235          240
Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
          245          250          255
Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
          260          265          270
Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
          275          280          285
Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
          290          295          300
Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
305          310          315          320
Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
          325          330          335
Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
          340          345          350
Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
          355          360          365
Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
          370          375          380
Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
385          390          395          400
Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
          405          410          415
Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
          420          425          430
Ile Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr Glu Lys
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Ser Leu Ser His Ser Pro Gly Lys
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 <212> DNA
 <213> Mouse

<220>
 <221> CDS
 <222> (13)...(726)
 <223> DAV-1 light chain, penton base monoclonal antibody

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tgg gtt cca ggc tcc act ggt gac att gtg ctg acc caa tct cca gct      99
Trp Val Pro Gly Ser Thr Gly Asp Ile Val Leu Thr Gln Ser Pro Ala
          15              20              25

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tct ttg gct gtg tct cta ggg cag agg gcc acc atc tcc tgc aag gcc Ser Leu Ala Val Ser Leu Gly Gln Arg Ala Thr Ile Ser Cys Lys Ala 30 35 40 45	147
agc caa agt gtt gat tat gat ggt gat agt tat atg aac tgg tac caa Ser Gln Ser Val Asp Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr Gln 50 55 60	195
cag aaa cca gga cag cca ccc aaa ctc ctc atc tat gct gca tcc aat Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Ala Ala Ser Asn 65 70 75	243
tta gaa tct ggg atc cca gcc agg ttt agt ggc agt ggg tct ggg aca Leu Glu Ser Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr 80 85 90	291
gac ttc acc ctc aac atc cat cct gtg gag gag gag gat gct gca acc Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp Ala Ala Thr 95 100 105	339
tat tac tgt cag caa act aat gag gat ccg tgg acg ttc ggt gga ggc Tyr Tyr Cys Gln Gln Thr Asn Glu Asp Pro Trp Thr Phe Gly Gly Gly 110 115 120 125	387
acc aag ctg gaa atc aaa cgg gct gat gct gca cca act gta tcc atc Thr Lys Leu Glu Ile Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile 130 135 140	435
ttc cca cca tcc agt gag cag tta aca tct gga ggt gcc tca gtc gtg Phe Pro Pro Ser Ser Glu Gln Leu Thr Ser Gly Gly Ala Ser Val Val 145 150 155	483
tgc ttc ttg aac aac ttc tac ccc aaa gac atc aat gtc aag tgg aag Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys 160 165 170	531
att gat ggc agt gaa cga caa aat ggc gtc ctg aac agt tgg act gat Ile Asp Gly Ser Glu Arg Gln Asn Gly Val Leu Asn Ser Trp Thr Asp 175 180 185	579
cag gac agc aaa gac agc acc tac agc atg agc agc acc ctc acg ttg Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu 190 195 200 205	627
acc aag gac gag tat gaa cga cat aac agc tat acc tgt gag gcc act Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr Thr Cys Glu Ala Thr 210 215 220	675
cac aag aca tca act tca ccc att gtc aag agc ttc aac agg aat gag His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser Phe Asn Arg Asn Glu 225 230 235	723
tgt tagagacaaa ggtcctgaga cgccaccacc agctccccag ctccatccta Cys	776

tcttcccttc taaggctcttg gaggcttctt cgagcggtaa agggcgaatt ccagc	831
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<210> 4

<211> 238

<212> PRT
<213> Mouse

<220>
<221> PEPTIDE
<222> (0)...(0)
<223> DAV-1 light chain, penton base monoclonal antibody

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          20          25          30
Val Ser Leu Gly Gln Arg Ala Thr Ile Ser Cys Lys Ala Ser Gln Ser
          35          40          45
Val Asp Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr Gln Gln Lys Pro
          50          55          60
Gly Gln Pro Pro Lys Leu Leu Ile Tyr Ala Ala Ser Asn Leu Glu Ser
65          70          75          80
Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
          85          90          95
Leu Asn Ile His Pro Val Glu Glu Glu Asp Ala Ala Thr Tyr Tyr Cys
          100          105          110
Gln Gln Thr Asn Glu Asp Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu
          115          120          125
Glu Ile Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro
          130          135          140
Ser Ser Glu Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu
145          150          155          160
Asn Asn Phe Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly
          165          170          175
Ser Glu Arg Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser
          180          185          190
Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp
          195          200          205
Glu Tyr Glu Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr
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Ser Thr Ser Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys
225          230          235

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<210> 5
<211> 1314
<212> DNA
<213> Mouse

<220>
<221> CDS
<222> (0)...(1314)
<223> Portion of DAV-1 heavy chain used for fusion protein
bifunctional antibody

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 1          5          10          15

gtc cac tct gag gtc cag ctt cag cag tca gga cct gag ctg gtg aaa      96
Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
          20          25          30

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cct ggg gcc tca gtg aag ata tcc tgc aag gct tct gga tac aca ttc	144
Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe	
35 40 45	
act gac tac aac atg cac tgg gtg aag cag agc cat gga aag agc ctt	192
Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu	
50 55 60	
gag tgg att gga tat att tat cct tac aaa ggt ggt act ggc tac aac	240
Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn	
65 70 75 80	
cag aag ttc aag agc aag gcc aca ttg aca aca gac agt tcc tcc aac	288
Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn	
85 90 95	
aca gcc tac atg gag ctc cgc agc ctg aca tct gat gcc tct gca gtc	336
Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val	
100 105 110	
tat tac tgt gca aga ggg att gct tac tgg ggc caa ggg act ctg gtc	384
Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val	
115 120 125	
act gtc tct gca gcc aaa acg aca ccc cca tct gtc tat cca ctg gcc	432
Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala	
130 135 140	
cct gga tct gct gcc caa act aac tcc atg gtg acc ctg gga tgc ctg	480
Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu	
145 150 155 160	
gtc aag ggc tat ttc cct gag cca gtg aca gtg acc tgg aac tct gga	528
Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly	
165 170 175	
tcc ctg tcc agc ggt gtg cac acc ttc cca gct gtc ctg cag tct gac	576
Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp	
180 185 190	
ctc tac act ctg agc agc tca gtg act gtc ccc tcc agc acc tgg ccc	624
Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro	
195 200 205	
agc gag acc gtc acc tgc aac gtt gcc cac ccg gcc agc agc acc aag	672
Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys	
210 215 220	
gtg gac aag aaa att gtg ccc agg gat tgt ggt tgt aag cct tgc ata	720
Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile	
225 230 235 240	
tgt aca gtc cca gaa gta tca tct gtc ttc atc ttc ccc cca aag ccc	768
Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro	
245 250 255	
aag gat gtg ctc acc att act ctg act cct aag gtc acg tgt gtt gtg	816
Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val	
260 265 270	

gta gac atc agc aag gat gat ccc gag gtc cag ttc agc tgg ttt gta Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val 275 280 285	864
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ttc aac agc act ttc cgc tca gtc agt gaa ctt ccc atc atg cac cag Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln 305 310 315 320	960
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ttc cct gcc ccc atc gag aaa acc atc tcc aaa acc aaa ggc aga ccg Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro 340 345 350	1056
aag gct cca cag gtg tac acc att cca cct ccc aag gag cag atg gcc Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala 355 360 365	1104
aag gat aaa gtc agt ctg acc tgc atg ata aca gac ttc ttc cct gaa Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu 370 375 380	1152
gac att act gtg gag tgg cag tgg aat ggg cag cca gcg gag aac tac Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr 385 390 395 400	1200
aag aac act cag ccc atc atg gac aca gat ggc tct tac ttc gtc tac Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr 405 410 415	1248
agc aag ctc aat gtg cag aag agc aac tgg gag gca gga aat act ttc Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe 420 425 430	1296
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<210> 6
 <211> 438
 <212> PRT
 <213> Mouse

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Portion of DAV-1 heavy chain used for fusion protein
 bifunctional antibody

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 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15

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			20					25					30		
Pro	Gly	Ala	Ser	Val	Lys	Ile	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe
		35					40					45			
Thr	Asp	Tyr	Asn	Met	His	Trp	Val	Lys	Gln	Ser	His	Gly	Lys	Ser	Leu
	50					55					60				
Glu	Trp	Ile	Gly	Tyr	Ile	Tyr	Pro	Tyr	Lys	Gly	Gly	Thr	Gly	Tyr	Asn
65					70					75					80
Gln	Lys	Phe	Lys	Ser	Lys	Ala	Thr	Leu	Thr	Thr	Asp	Ser	Ser	Ser	Asn
				85					90					95	
Thr	Ala	Tyr	Met	Glu	Leu	Arg	Ser	Leu	Thr	Ser	Asp	Ala	Ser	Ala	Val
			100					105						110	
Tyr	Tyr	Cys	Ala	Arg	Gly	Ile	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val
		115					120					125			
Thr	Val	Ser	Ala	Ala	Lys	Thr	Thr	Pro	Pro	Ser	Val	Tyr	Pro	Leu	Ala
	130					135					140				
Pro	Gly	Ser	Ala	Ala	Gln	Thr	Asn	Ser	Met	Val	Thr	Leu	Gly	Cys	Leu
145					150					155					160
Val	Lys	Gly	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Thr	Trp	Asn	Ser	Gly
				165					170					175	
Ser	Leu	Ser	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Asp
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Leu	Tyr	Thr	Leu	Ser	Ser	Ser	Val	Thr	Val	Pro	Ser	Ser	Thr	Trp	Pro
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Ser	Glu	Thr	Val	Thr	Cys	Asn	Val	Ala	His	Pro	Ala	Ser	Ser	Thr	Lys
	210					215					220				
Val	Asp	Lys	Lys	Ile	Val	Pro	Arg	Asp	Cys	Gly	Cys	Lys	Pro	Cys	Ile
225					230					235					240
Cys	Thr	Val	Pro	Glu	Val	Ser	Ser	Val	Phe	Ile	Phe	Pro	Pro	Lys	Pro
				245					250					255	
Lys	Asp	Val	Leu	Thr	Ile	Thr	Leu	Thr	Pro	Lys	Val	Thr	Cys	Val	Val
			260					265					270		
Val	Asp	Ile	Ser	Lys	Asp	Asp	Pro	Glu	Val	Gln	Phe	Ser	Trp	Phe	Val
		275					280					285			
Asp	Asp	Val	Glu	Val	His	Thr	Ala	Gln	Thr	Gln	Pro	Arg	Glu	Glu	Gln
	290					295					300				
Phe	Asn	Ser	Thr	Phe	Arg	Ser	Val	Ser	Glu	Leu	Pro	Ile	Met	His	Gln
305					310					315					320
Asp	Trp	Leu	Asn	Gly	Lys	Glu	Phe	Lys	Cys	Arg	Val	Asn	Ser	Ala	Ala
			325						330					335	
Phe	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Thr	Lys	Gly	Arg	Pro
			340					345					350		
Lys	Ala	Pro	Gln	Val	Tyr	Thr	Ile	Pro	Pro	Lys	Glu	Gln	Met	Ala	
		355					360				365				
Lys	Asp	Lys	Val	Ser	Leu	Thr	Cys	Met	Ile	Thr	Asp	Phe	Phe	Pro	Glu
	370					375					380				
Asp	Ile	Thr	Val	Glu	Trp	Gln	Trp	Asn	Gly	Gln	Pro	Ala	Glu	Asn	Tyr
385					390					395					400
Lys	Asn	Thr	Gln	Pro	Ile	Met	Asp	Thr	Asp	Gly	Ser	Tyr	Phe	Val	Tyr
				405					410					415	
Ser	Lys	Leu	Asn	Val	Gln	Lys	Ser	Asn	Trp	Glu	Ala	Gly	Asn	Thr	Phe
			420					425					430		
Ile	Cys	Ser	Val	Leu	His										
		435													

<210> 7
 <211> 157
 <212> PRT
 <213> Human

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Tumor necrosis factor-alpha (TNF alpha, mature peptide)

<400> 7
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val
 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Lys Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Lys Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Lys Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Lys
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 8
 <211> 70
 <212> PRT
 <213> Human

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Human Insulin-like Growth Factor 1 sequence
 (IGF-1, mature peptide)

<400> 8
 Gly Pro Glu Thr Leu Cys Gly Ala Glu Leu Val Asp Ala Leu Gln Phe
 1 5 10 15
 Val Cys Gly Asp Arg Gly Phe Tyr Phe Asn Lys Pro Thr Gly Tyr Gly
 20 25 30
 Ser Ser Ser Arg Arg Ala Pro Gln Thr Gly Ile Val Asp Glu Cys Cys
 35 40 45
 Phe Arg Ser Cys Asp Leu Arg Arg Leu Glu Met Tyr Cys Ala Pro Leu
 50 55 60
 Lys Pro Ala Lys Ser Ala
 65 70

<210> 9
 <211> 53
 <212> PRT
 <213> Human

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Epidermal Growth Factor (EGF, mature peptide)

<400> 9
 Asn Ser Asp Ser Glu Cys Pro Leu Ser His Asp Gly Tyr Cys Leu His
 1 5 10 15
 Asp Gly Val Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys Asn
 20 25 30
 Cys Val Val Gly Tyr Ile Gly Glu Arg Cys Gln Tyr Arg Asp Leu Lys
 35 40 45
 Trp Trp Glu Leu Arg
 50

<210> 10
 <211> 164
 <212> PRT
 <213> Human

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Stem Cell Factor (SCF, mature peptide)

<400> 10
 Glu Gly Ile Cys Arg Asn Arg Val Thr Asn Asn Val Lys Asp Val Thr
 1 5 10 15
 Lys Leu Val Ala Asn Leu Pro Lys Asp Tyr Met Ile Thr Leu Lys Tyr
 20 25 30
 Val Pro Gly Met Asp Val Leu Pro Ser His Cys Trp Ile Ser Glu Met
 35 40 45
 Val Val Gln Leu Ser Asp Ser Leu Thr Asp Leu Leu Asp Lys Phe Ser
 50 55 60
 Asn Ile Ser Glu Gly Leu Ser Asn Tyr Ser Ile Ile Asp Lys Leu Val
 65 70 75 80
 Asn Ile Val Asp Asp Leu Val Glu Cys Val Lys Glu Asn Ser Ser Lys
 85 90 95
 Asp Leu Lys Lys Ser Phe Lys Ser Pro Glu Pro Arg Leu Phe Thr Pro
 100 105 110
 Glu Glu Phe Phe Arg Ile Phe Asn Arg Ser Ile Asp Ala Phe Lys Asp
 115 120 125
 Phe Val Val Ala Ser Glu Thr Ser Asp Cys Val Val Ser Ser Thr Leu
 130 135 140
 Ser Pro Glu Lys Asp Ser Arg Val Ser Val Thr Lys Pro Phe Met Leu
 145 150 155 160
 Pro Pro Val Ala

<210> 11
 <211> 597
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Fusion protein with N-terminal portion of DAV-1 heavy chain
 and TNF alpha mature peptide

<400> 11
 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15
 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45

Thr	Asp	Tyr	Asn	Met	His	Trp	Val	Lys	Gln	Ser	His	Gly	Lys	Ser	Leu
50						55					60				
Glu	Trp	Ile	Gly	Tyr	Ile	Tyr	Pro	Tyr	Lys	Gly	Gly	Thr	Gly	Tyr	Asn
65					70					75					80
Gln	Lys	Phe	Lys	Ser	Lys	Ala	Thr	Leu	Thr	Thr	Asp	Ser	Ser	Ser	Asn
				85					90					95	
Thr	Ala	Tyr	Met	Glu	Leu	Arg	Ser	Leu	Thr	Ser	Asp	Ala	Ser	Ala	Val
			100					105					110		
Tyr	Tyr	Cys	Ala	Arg	Gly	Ile	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val
		115					120					125			
Thr	Val	Ser	Ala	Ala	Lys	Thr	Thr	Pro	Pro	Ser	Val	Tyr	Pro	Leu	Ala
	130					135					140				
Pro	Gly	Ser	Ala	Ala	Gln	Thr	Asn	Ser	Met	Val	Thr	Leu	Gly	Cys	Leu
145					150					155					160
Val	Lys	Gly	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Thr	Trp	Asn	Ser	Gly
				165					170					175	
Ser	Leu	Ser	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Asp
			180					185					190		
Leu	Tyr	Thr	Leu	Ser	Ser	Ser	Val	Thr	Val	Pro	Ser	Ser	Thr	Trp	Pro
		195					200					205			
Ser	Glu	Thr	Val	Thr	Cys	Asn	Val	Ala	His	Pro	Ala	Ser	Ser	Thr	Lys
	210					215					220				
Val	Asp	Lys	Lys	Ile	Val	Pro	Arg	Asp	Cys	Gly	Cys	Lys	Pro	Cys	Ile
225					230					235					240
Cys	Thr	Val	Pro	Glu	Val	Ser	Ser	Val	Phe	Ile	Phe	Pro	Pro	Lys	Pro
				245					250					255	
Lys	Asp	Val	Leu	Thr	Ile	Thr	Leu	Thr	Pro	Lys	Val	Thr	Cys	Val	Val
			260					265					270		
Val	Asp	Ile	Ser	Lys	Asp	Asp	Pro	Glu	Val	Gln	Phe	Ser	Trp	Phe	Val
	275						280					285			
Asp	Asp	Val	Glu	Val	His	Thr	Ala	Gln	Thr	Gln	Pro	Arg	Glu	Glu	Gln
	290					295					300				
Phe	Asn	Ser	Thr	Phe	Arg	Ser	Val	Ser	Glu	Leu	Pro	Ile	Met	His	Gln
305					310					315					320
Asp	Trp	Leu	Asn	Gly	Lys	Glu	Phe	Lys	Cys	Arg	Val	Asn	Ser	Ala	Ala
				325					330					335	
Phe	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Thr	Lys	Gly	Arg	Pro
			340					345					350		
Lys	Ala	Pro	Gln	Val	Tyr	Thr	Ile	Pro	Pro	Pro	Lys	Glu	Gln	Met	Ala
	355						360					365			
Lys	Asp	Lys	Val	Ser	Leu	Thr	Cys	Met	Ile	Thr	Asp	Phe	Phe	Pro	Glu
	370					375					380				
Asp	Ile	Thr	Val	Glu	Trp	Gln	Trp	Asn	Gly	Gln	Pro	Ala	Glu	Asn	Tyr
385					390					395					400
Lys	Asn	Thr	Gln	Pro	Ile	Met	Asp	Thr	Asp	Gly	Ser	Tyr	Phe	Val	Tyr
				405					410					415	
Ser	Lys	Leu	Asn	Val	Gln	Lys	Ser	Asn	Trp	Glu	Ala	Gly	Asn	Thr	Phe
			420					425					430		
Ile	Cys	Ser	Val	Leu	His	Glu	Phe	Val	Arg	Ser	Ser	Ser	Arg	Thr	Pro
	435						440					445			
Ser	Asp	Lys	Pro	Val	Ala	His	Val	Val	Ala	Asn	Pro	Gln	Ala	Glu	Gly
	450					455					460				
Gln	Leu	Gln	Trp	Leu	Asn	Arg	Arg	Ala	Asn	Ala	Leu	Leu	Ala	Asn	Gly
465					470					475					480
Val	Glu	Leu	Arg	Asp	Asn	Gln	Leu	Val	Val	Pro	Ser	Glu	Gly	Leu	Tyr
				485					490					495	
Leu	Ile	Tyr	Ser	Gln	Val	Leu	Phe	Lys	Gly	Gln	Gly	Cys	Pro	Ser	Thr
			500					505					510		
His	Val	Leu	Leu	Thr	His	Thr	Ile	Ser	Arg	Ile	Ala	Val	Ser	Tyr	Gln
		515					520					525			

Thr Lys Val Asn Leu Leu Ser Ala Ile Lys Ser Pro Cys Gln Arg Glu
 530 535 540
 Thr Pro Glu Gly Ala Glu Ala Lys Pro Trp Tyr Glu Pro Ile Tyr Leu
 545 550 555
 Gly Gly Val Phe Gln Leu Glu Lys Gly Asp Arg Leu Ser Ala Glu Ile
 565 570 575
 Asn Arg Pro Asp Tyr Leu Asp Phe Ala Glu Ser Gly Gln Val Tyr Phe
 580 585 590
 Gly Ile Ile Ala Leu
 595

<210> 12
 <211> 510
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Fusion protein with N-terminal portion of DAV-1 heavy chain
 and IGF-1 mature peptide

<400> 12
 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15
 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 50 55 60
 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn
 85 90 95
 Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
 115 120 125
 Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
 130 135 140
 Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
 145 150 155 160
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
 165 170 175
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
 180 185 190
 Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln

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305          310          315          320
Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
          325          330          335
Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
          340          345          350
Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
          355          360          365
Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
          370          375          380
Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
385          390          395          400
Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
          405          410          415
Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
          420          425          430
Ile Cys Ser Val Leu His Glu Phe Gly Pro Glu Thr Leu Cys Gly Ala
          435          440          445
Glu Leu Val Asp Ala Leu Gln Phe Val Cys Gly Asp Arg Gly Phe Tyr
          450          455          460
Phe Asn Lys Pro Thr Gly Tyr Gly Ser Ser Ser Arg Arg Ala Pro Gln
465          470          475          480
Thr Gly Ile Val Asp Glu Cys Cys Phe Arg Ser Cys Asp Leu Arg Arg
          485          490          495
Leu Glu Met Tyr Cys Ala Pro Leu Lys Pro Ala Lys Ser Ala
          500          505          510

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<210> 13
 <211> 493
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Fusion protein with N-terminal portion of DAV-1 heavy chain
 and EGF mature peptide

```

<400> 13
Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
1          5          10          15
Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
          20          25          30
Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
          35          40          45
Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
50          55          60
Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
65          70          75          80
Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn
          85          90          95
Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
          100          105          110
Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
          115          120          125
Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
130          135          140
Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
145          150          155          160
Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
          165          170          175
Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
180          185          190

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Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
      195      200      205
Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
      210      215      220
Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
      225      230      235      240
Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
      245      250      255
Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
      260      265      270
Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
      275      280      285
Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
      290      295      300
Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
      305      310      315      320
Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
      325      330      335
Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
      340      345      350
Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
      355      360      365
Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
      370      375      380
Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
      385      390      395      400
Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
      405      410      415
Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
      420      425      430
Ile Cys Ser Val Leu His Glu Phe Asn Ser Asp Ser Glu Cys Pro Leu
      435      440      445
Ser His Asp Gly Tyr Cys Leu His Asp Gly Val Cys Met Tyr Ile Glu
      450      455      460
Ala Leu Asp Lys Tyr Ala Cys Asn Cys Val Val Gly Tyr Ile Gly Glu
      465      470      475      480
Arg Cys Gln Tyr Arg Asp Leu Lys Trp Trp Glu Leu Arg
      485      490

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<210> 14
 <211> 613
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Fusion protein with N-terminal portion of DAV-1 heavy chain
 and SCF mature peptide

```

<400> 14
Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1      5      10      15
Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
      20      25      30
Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
      35      40      45
Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
      50      55      60
Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
      65      70      75      80
Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn

```

				85					90					95			
Thr	Ala	Tyr	Met	Glu	Leu	Arg	Ser	Leu	Thr	Ser	Asp	Ala	Ser	Ala	Val		
			100					105					110				
Tyr	Tyr	Cys	Ala	Arg	Gly	Ile	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val		
		115					120					125					
Thr	Val	Ser	Ala	Ala	Lys	Thr	Thr	Pro	Pro	Ser	Val	Tyr	Pro	Leu	Ala		
	130					135					140						
Pro	Gly	Ser	Ala	Ala	Gln	Thr	Asn	Ser	Met	Val	Thr	Leu	Gly	Cys	Leu		
145					150				155						160		
Val	Lys	Gly	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Thr	Trp	Asn	Ser	Gly		
				165				170						175			
Ser	Leu	Ser	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Asp		
			180				185						190				
Leu	Tyr	Thr	Leu	Ser	Ser	Ser	Val	Thr	Val	Pro	Ser	Ser	Thr	Trp	Pro		
	195						200					205					
Ser	Glu	Thr	Val	Thr	Cys	Asn	Val	Ala	His	Pro	Ala	Ser	Ser	Thr	Lys		
	210					215					220						
Val	Asp	Lys	Lys	Ile	Val	Pro	Arg	Asp	Cys	Gly	Cys	Lys	Pro	Cys	Ile		
225					230					235					240		
Cys	Thr	Val	Pro	Glu	Val	Ser	Ser	Val	Phe	Ile	Phe	Pro	Pro	Lys	Pro		
				245				250						255			
Lys	Asp	Val	Leu	Thr	Ile	Thr	Leu	Thr	Pro	Lys	Val	Thr	Cys	Val	Val		
	260						265						270				
Val	Asp	Ile	Ser	Lys	Asp	Asp	Pro	Glu	Val	Gln	Phe	Ser	Trp	Phe	Val		
	275						280					285					
Asp	Asp	Val	Glu	Val	His	Thr	Ala	Gln	Thr	Gln	Pro	Arg	Glu	Glu	Gln		
	290					295					300						
Phe	Asn	Ser	Thr	Phe	Arg	Ser	Val	Ser	Glu	Leu	Pro	Ile	Met	His	Gln		
305				310					315						320		
Asp	Trp	Leu	Asn	Gly	Lys	Glu	Phe	Lys	Cys	Arg	Val	Asn	Ser	Ala	Ala		
			325					330						335			
Phe	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Thr	Lys	Gly	Arg	Pro		
			340					345					350				
Lys	Ala	Pro	Gln	Val	Tyr	Thr	Ile	Pro	Pro	Pro	Lys	Glu	Gln	Met	Ala		
	355						360					365					
Lys	Asp	Lys	Val	Ser	Leu	Thr	Cys	Met	Ile	Thr	Asp	Phe	Phe	Pro	Glu		
	370					375					380						
Asp	Ile	Thr	Val	Glu	Trp	Gln	Trp	Asn	Gly	Gln	Pro	Ala	Glu	Asn	Tyr		
385				390					395						400		
Lys	Asn	Thr	Gln	Pro	Ile	Met	Asp	Thr	Asp	Gly	Ser	Tyr	Phe	Val	Tyr		
			405					410						415			
Ser	Lys	Leu	Asn	Val	Gln	Lys	Ser	Asn	Trp	Glu	Ala	Gly	Asn	Thr	Phe		
			420					425					430				
Ile	Cys	Ser	Val	Leu	His	Glu	Phe	Cys	Arg	Tyr	Pro	Ala	Gln	Trp	Arg		
	435					440						445					
Pro	Gln	Gly	Ile	Cys	Arg	Asn	Arg	Val	Thr	Asn	Asn	Val	Lys	Asp	Val		
	450					455					460						
Thr	Lys	Leu	Val	Ala	Asn	Leu	Pro	Lys	Asp	Tyr	Met	Ile	Thr	Leu	Lys		
465				470					475						480		
Tyr	Val	Pro	Gly	Met	Asp	Val	Leu	Pro	Ser	His	Cys	Trp	Ile	Ser	Glu		
			485					490						495			
Met	Val	Val	Gln	Leu	Ser	Asp	Ser	Leu	Thr	Asp	Leu	Leu	Asp	Lys	Phe		
			500					505					510				
Ser	Asn	Ile	Ser	Glu	Gly	Leu	Ser	Asn	Tyr	Ser	Ile	Ile	Asp	Lys	Leu		
	515						520					525					
Val	Asn	Ile	Val	Asp	Asp	Leu	Val	Glu	Cys	Val	Lys	Glu	Asn	Ser	Ser		
	530					535					540						
Lys	Asp	Leu	Lys	Lys	Ser	Phe	Lys	Ser	Pro	Glu	Pro	Arg	Leu	Phe	Thr		
545				550					555						560		
Pro	Glu	Glu	Phe	Phe	Arg	Ile	Phe	Asn	Arg	Ser	Ile	Asp	Ala	Phe	Lys		

Asp Phe Val Val Ala Ser Glu Thr Ser Asp Cys Val Val Ser Ser Thr
 565 570 575
 580 585 590
 Leu Ser Pro Glu Lys Asp Ser Arg Val Ser Val Thr Lys Pro Phe Met
 595 600 605
 Leu Pro Pro Val Ala
 610

<210> 15
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer for amplification of CH3 region of
 DAV-1 heavy chain.

<400> 15
 cctgctctgt gtttacatga ggg 23

<210> 16
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer for amplification of CH1 region of
 DAV-1 heavy chain.

<400> 16
 cccagggtca tggagttag 19

<210> 17
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer for amplification of DAV-1 kappa chain
 CL-A.

<400> 17
 aagatggata cagttggtgc 20

<210> 18
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer for amplification of DAV-1 kappa chain
 CL-B.

<400> 18
 tgtcaagagc ttcaacagga 20

<210> 19
 <211> 15
 <212> PRT
 <213> Adenovirus

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Peptide spanning integrin binding site on penton base.

<400> 19
 Met Asn Asp His Ala Ile Arg Gly Asp Thr Phe Ala Thr Arg Ala
 1 5 10 15

<210> 20
 <211> 9
 <212> PRT
 <213> Adenovirus

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Epitope on penton base integrin binding site recognized by DAV-1.

<400> 20
 Ile Arg Gly Asp Thr Phe Ala Thr Arg
 1 5

<210> 21
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR sense primer for subcloning DAV-1 heavy chain for whole antibody
 or Fab'2 constructs.

<400> 21
 ggtaccgccca ccatgggatg gagctggatc t

31

<210> 22
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR antisense primer for subcloning DAV-1 heavy chain for
 whole antibody construct.

<400> 22
 gaattcatgt aacacagagc agga

24

<210> 23
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR sense primer for subcloning DAV-1 light chain for
 whole antibody or Fab'2 constructs.

<400> 23
 aagcttgcca ccatggagac agacacaatc ctgct

35

<210> 24

<211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> PCR antisense primer for subcloning DAV-1 light chain for whole antibody or Fab'2 constructs.

 <400> 24
 tctagatgtc tctaacactc attcctgt 28

 <210> 25
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> PCR antisense primer for subcloning DAV-1 heavy chain for Fab'2 constructs.

 <400> 25
 gaattctgat acttctggga ctgt 24

 <210> 26
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> PCR sense primer for subcloning TNF α into DAV-1/TNF α fusion construct.

 <400> 26
 gaattcgtca gatcatcttc tcgaac 26

 <210> 27
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> PCR antisense primer for subcloning TNF α into DAV-1/TNF α fusion construct.

 <400> 27
 gaattctaca gggcaatgat cccaaa 26

 <210> 28
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> PCR sense primer for subcloning IGF-1 into DAV-1/IGF-1 fusion construct.

 <400> 28
 gaattcggac cggagacgct ctgcgg 26

 <210> 29

<211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR antisense primer for subcloning IGF-1 into DAV-1/IGF-1 fusion construct.

<400> 29
 gaattctaag ctgacttggc aggctt

26

<210> 30
 <211> 96
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR sense primer for subcloning EGF into DAV-1/EGF fusion construct.

<400> 30
 gaattcaata gtgactctga atgtccctg tcccacgatg ggtactgcct ccatgatggt
 gtgtgcatgt atattgaagc attggacaag tatgca

60
96

<210> 31
 <211> 98
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR antisense primer for subcloning EGF into DAV-1/EGF fusion construct.

<400> 31
 gaattctagc gcagttccca ccacttcagg tctcgggtact gacatcgctc cccgatgtag
 ccaacaacac agttgcatgc atacttgtcc aatgcttc

60
98

<210> 32
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR sense primer for subcloning SCF into DAV-1/SCF fusion construct.

<400> 32
 gcggcgcgcaa gggatctgca ggaatcg

27

<210> 33
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR antisense primer for subcloning SCF into DAV-1/SCF fusion construct.

<400> 33
 tctagagtgc aacagggggt aacata

26